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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/672,812	09/29/2000	Brian G. Wall	85773-332	2242

7590 07/23/2003
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EXAMINER

JAMAL, ALEXANDER

ART UNIT	PAPER NUMBER
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2643

DATE MAILED: 07/23/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/672,812

Applicant(s)

WALL, BRIAN G. 

Examiner

Alexander Jamal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-5, 18, 19** rejected under 35 U.S.C. 102(b) as being anticipated by Schopfer (5249226).

a. **Claim 1:** Schopfer discloses an arrangement for feeding current into a subscriber loop comprising:

- i. An output to impress a voltage across the loop conductors (reference 12, Fig. 1) that is output from a current amplifier. The amplifier will generate a current thru R_L (reference 18, Fig. 1) with R_L being the load across the subscriber loop. Since $\text{Voltage} = \text{Current} \times \text{Resistance}$, a differential voltage will be impressed across the conductors of the loop.
- ii. A control element that regulates the magnitude of loop current to a target value. The target value is set depending on load level on the subscriber loop (Col 1, lines 54-65). Since the number of CPE's active in the subscriber loop determine the load, the applicant's Claim 1 is anticipated by Schopfer.

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- b. **Claim 2:** Schopfer's apparatus contains multiple sets of parameters for current regulation based upon varying load levels on the subscriber loop. A second CPE going offhook on a subscriber loop would create a change in the load, and Schopfer's control element would change the loop current regulation value accordingly (Col 1, line 66 to Col 2, line 29).
- c. **Claim 3:** Schopfer's apparatus regulates the loop current in two ranges of loop load levels. The apparatus would regulate in the first range for a lower load level (ie. 1 CPE in use) and regulate in the second range that extends above the higher load level (ie. a 2nd CPE goes into use) (ABSTRACT).
- d. **Claim 4:** Schopfer's apparatus will regulate current to a target based upon the load in the loop. At least 1 (designated 'A' in applicant's claim) active CPE would constitute a change to the higher load level and the control element would shift to the higher range of target loop current values (ABSTRACT).
- e. **Claim 5:** Schopfer describes his apparatus as being used to control the feed current to equipment on a subscriber's loop (Col 1 lines 12-23). The equipment is represented by R.sub.L and located across the tip and ring of the subscriber loop (reference 18, Fig. 1).
- f. **Claim 18:** Schopfer discloses a method comprising:
- i. Regulating the magnitude of loop current to a target value. The target value is set depending on load level on the subscriber loop (Col 1, lines 54-65). Since the number of CPE's active in the subscriber loop determine the load, the applicant's Claim 18 is anticipated by Schopfer.

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ii. Regulating the loop current into a second range of values based upon a 2nd CPE going active. In his method, the apparatus would regulate in the first range for a lower load level (ie. 1 CPE in use) and regulate in the second range that extends above the higher load level (ie. a 2nd CPE goes into use) (ABSTRACT).

g. **Claim 19:** Schopfer discloses an apparatus comprising:

i. An output to impress a voltage across the loop conductors (reference 12, Fig. 1) that is output from a current amplifier. The amplifier will generate a current thru R_L (reference 18, Fig. 1) with R_L being the load across the subscriber loop. Since Voltage=Current*Resistance, a differential voltage will be impressed across the conductors of the loop.

ii. A control element that regulates the magnitude of loop current to a target value. The target value is set depending on load level on the subscriber loop (Col 1, lines 54-65). Since the number of CPE's active in the subscriber loop determine the load, the applicant's Claim 19 is anticipated by Schopfer.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. **Claims 6-8** rejected under 35 U.S.C. 103(a) as being unpatentable over Schopfer (5249226) as applied to claims 1-5 above, and further in view of Jakab (5333196).

a. **Claim 6:** Schopfer teaches applicant's claims 1-5 but does not mention the control element receiving an input control signal based upon the current in the tip conductor.

Jakab teaches the design of an improved current limiting battery feed arrangement that meets all the requirements (AC impedance, DC resistance, protection from lightning strikes on the loop) for a circuit to limit current in a subscriber loop (Col 1, lines 33-52). In his design he uses at least one control input relative to the magnitude of the tip current: the voltage across a series resistor (reference 8, FIG. 4; Col 5, line 67 to Col 6, line 9). It would have been obvious to one of ordinary skill in the art at the time of this application to use at least one control input relative to the magnitude of the tip current.

b. **Claim 7:** Jakab further teaches the use of a second control input for receiving a second control signal based upon the current in the ring conductor: the voltage across a series resistor (reference 70, FIG. 4; Col 5, line 67 to Col 6, line 9). Therefore it would have been obvious to one of ordinary skill in the art at the time of this application to use a first and second control input relative to the magnitude of the tip and ring current respectively.

c. **Claim 8:** Based on Jakab's improved battery feed arrangement, it would have been obvious to one of ordinary skill in the art at the time of this application to:

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- i. Include a power supply and input for the power supply to the feed arrangement. (Shown as the -52V and ground in FIG. 4).
- ii. Generate an output control signal from an op-amp based upon the first and second input control signals. (FIG 4: Op-amp 80 outputs a reference signal based upon values obtained from resistors 8, 70) (Col 5, line 67 to Col 6, line 9).
- iii. Output the control signal (reference 94, FIG. 4; Col 5, line 67 to Col 6, line 9).
- iv. Let the output signal be suitable to control the output voltage of the power supply in order to set the loop current to a pre-selected target value (Col 6, lines 4-20).

4. **Claims 9-17** rejected under 35 U.S.C. 103(a) as being unpatentable over Schopfer (5249226), and further in view of Jakab (5333196).

a. **Claim 9:** Schopfer discloses:

- i. An output to impress a voltage across the loop conductors is shown in Schopfer's (reference 12, Fig. 1) current amplifier. The amplifier will generate a current thru R_L (reference 18, Fig. 1) with R_L being the load across the subscriber loop. Since $\text{Voltage} = \text{Current} * \text{Resistance}$, a differential voltage will be impressed across the conductors of the loop.
- ii. A control element that regulates the magnitude of loop current to a target value. The target value is set depending on load level on the subscriber loop (Col 1, lines 54-65). Since the number of CPE's active in the subscriber loop determine the load, the applicant's Claim 1 is anticipated by Schopfer.

But Schopfer does not mention:

- i. A power supply
- ii. An input connected to the power supply

Jakab teaches the design of an improved current limiting battery feed arrangement that meets all the requirements (AC impedance, DC resistance, protection from lightning strikes on the loop) for a circuit to limit current in a subscriber loop (Col 1, lines 33-52). Jakab's design includes a power supply and input for the power supply to the feed arrangement (Shown as the -52V and ground in FIG. 4). It would have been obvious to one of ordinary skill in the art at the time of this application to include a power supply and input connected to the feed arrangement.

b. Claim 10: Based on Jakab's improved battery feed arrangement, it would have been obvious to one of ordinary skill in the art at the time of this application to:

- i. Generate an output control signal from the control element (Col 5, line 67 to Col 6, line 9).
- ii. Output the control signal (reference 94, FIG. 4; Col 5, line 67 to Col 6, line 9) to the power supply.

iii. Let the output signal be suitable to control the output voltage of the power supply in order to set the loop current to a pre-selected target value (Col 6, lines 4-20).

b. **Claim 11:** Schopfer's apparatus contains multiple sets of parameters for current regulation based upon varying load levels on the subscriber loop. A second CPE going offhook on a subscriber loop would create a change in the load, and Schopfer's control element would change the loop current regulation value accordingly (Col 1, line 66 to Col 2, line 29).

c. **Claim 12:** Schopfer's apparatus regulates the loop current in two ranges of loop load levels. The apparatus would regulate in the first range for a lower load level (ie. 1 CPE in use) and regulate in the second range that extends above the higher load level (ie. a 2nd CPE goes into use) (ABSTRACT).

d. **Claim 13:** Schopfer's apparatus will regulate current to a target based upon the load in the loop. At least 1 (designated 'A' in applicant's claim) active CPE would constitute a change to the higher load level and the control element would shift to the higher range of target loop current values (ABSTRACT).

e. **Claim 14:** Schopfer describes his apparatus as being used to control the feed current to equipment on a subscriber's loop (Col 1 lines 12-23). The equipment is represented by R.sub.L and located across the tip and ring of the subscriber loop (reference 18, Fig. 1).

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f. **Claim 15:** Jakab teaches the design of an improved current limiting battery feed arrangement that meets all the requirements (AC impedance, DC resistance, protection from lightning strikes on the loop) for a circuit to limit current in a subscriber loop (Col 1, lines 33-52). In his design he uses at least one control input relative to the magnitude of the tip current: the voltage across a series resistor (reference 8, FIG. 4; Col 5, line 67 to Col 6, line 9). It would have been obvious to one of ordinary skill in the art at the time of this application to use at least one control input relative to the magnitude of the tip current.

g. **Claim 16:** Jakab further teaches the use of a second control input for receiving a second control signal based upon the current in the ring conductor: the voltage across a series resistor (reference 70, FIG. 4; Col 5, line 67 to Col 6, line 9). Therefore it would have been obvious to one of ordinary skill in the art at the time of this application to use a first and second control input relative to the magnitude of the tip and ring current respectively.

h. **Claim 17:** In Jakab's design, an op-amp generates an output control signal based upon the first and second input control signals. (FIG 4: Op-amp 80 outputs a reference signal based upon values obtained from resistors 8, 70) (Col 5, line 67 to Col 6, line 9).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 703-305-3433. The examiner can normally be reached on M-F 8AM-5PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 703-305-4708. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9315 for After Final communications.

AJ
July 14, 2003